Paper No. 19

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte GEORGE A. CAVIGELLI

Appeal No. 2002-0558
Application No. 09/289,076

HEARD: Feb. 5, 2003

Before KRASS, RUGGIERO, and BARRY, *Administrative Patent Judges*.

BARRY, *Administrative Patent Judge*.

DECISION ON APPEAL

A patent examiner rejected claims 1-24. The appellant appeals therefrom under 35 U.S.C. § 134(a). We affirm-in-part.

BACKGROUND

The invention at issue on appeal monitors current leaking between a high voltage source and ground. In power switching stations, the quality of high voltage insulators is paramount. According to the appellant, monitoring leakage current during operation can provide information on the quality of such insulators. (Spec. at 1.)

The invention includes a transformer and an amplifier. In turn, the transformer comprises a primary wire and a secondary winding. For its part, the primary wire carries a leakage current from an insulator for a high voltage conductor to ground. The amplifier has two input terminals connected across the secondary winding of the transformer and produces an output signal proportional to the leakage current. (*Id.* at 1-2.)

A further understanding of the invention can be achieved by reading the following claim.

> 1. Apparatus for monitoring leakage currents from an insulator for a high voltage conductor to ground comprising:
>
> a transformer comprising a primary wire and a secondary winding,
>
> the secondary winding having a secondary resistance, the primary wire constructed and arranged to carry a leakage current from the insulator to the ground; and
>
> an amplifier having an input connected to the secondary winding, constructed and arranged to produce an output signal proportional to the leakage current.

Claims 1 and 4 stand rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,652,521 ("Meyer"). Claims 2, 3, and 5-24 stand rejected under 35 U.S.C. § 103(a) as obvious over Meyer and U.S. Patent No. 3,881,149 ("Kiko").

OPINION

Our opinion addresses the following groups of claims:

- claims 1, 4, and 20-24
- claim 2, 3, and 6-8
- claims 5 and 9-19.

Claims 1, 4, and 20-24

Rather than reiterate the positions of the examiner or the appellant *in toto*, we address the two points of contention therebetween. First, the examiner asserts, "Meyer (US 5652521) teaches an apparatus for monitoring leakage current ($I_{INSULATION}$ 14) of an insulator 12 from a high voltage conductor 2 to ground 10 (Fig. 2,3)." (Examiner's Answer at 10.) He adds, "primary wire 30 is arranged to carry a leakage current 32 from insulator 20 to ground 10. . . ." (*Id.* at 3-4.) The examiner further asserts, "Meyer also discloses an amplifier 93 having an input connected to a secondary winding 34 constructed and arranged to produce an output signal proportional to leakage current (Fig. 5)." (*Id.* at 10.) The appellant alleges, "[t]he reference does not disclose apparatus for monitoring leakage currents from an insulator for a high voltage conductor to ground. The reference does not disclose a primary wire constructed and arranged to carry leakage current from an insulator to the ground, nor an amplifier having an input connected to the secondary winding constructed and arranged to produce an output signal proportional to the leakage current." (Appeal Br. at 4.)

"Analysis begins with a key legal question -- *what* is the invention *claimed*?" *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1567, 1 USPQ2d 1593, 1597 (Fed. Cir. 1987). In answering the question, "the Board must give claims their broadest reasonable construction. . . ." *In re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1668 (Fed. Cir. 2000). "Moreover, limitations are not to be read into the claims from the specification." *In re Van Geuns*, 988 F.2d 1181, 1184, 26 USPQ2d 1057, 1059 (Fed. Cir. 1993) (citing *In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989)).

Here, claim 1 specifies in pertinent part the following limitations: "[a]pparatus for monitoring leakage currents from an insulator for a high voltage conductor to ground comprising . . . primary wire constructed and arranged to carry a leakage current from the insulator to the ground; and an amplifier having an input connected to the secondary winding, constructed and arranged to produce an output signal proportional to the leakage current." Giving the claim its broadest, reasonable construction, the limitations require an apparatus for monitoring leakage currents between an insulator and ground comprising a wire for carrying a leakage current from the insulator to the ground and an amplifier for generating a signal proportional to the leakage current.

"Having construed the claim limitations at issue, we now compare the claims to the prior art to determine if the prior art anticipates those claims." *In re Cruciferous Sprout Litig.*, 301 F.3d 1343, 1349, 64 USPQ2d 1202, 1206 (Fed. Cir. 2002). "[A]nticipation is a question of fact." *Hyatt*, 211 F.3d at 1371, 54 USPQ2d at 1667 (citing *Bischoff v. Wethered*, 76 U.S. (9 Wall.) 812, 814-15 (1869); *In re Schreiber*, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431 (Fed. Cir. 1997). "A claim is anticipated . . . if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987) (citing *Structural Rubber Prods. Co. v. Park Rubber Co.*, 749 F.2d 707, 715, 223 USPQ 1264, 1270 (Fed. Cir. 1984); *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548, 220 USPQ 193, 198 (Fed. Cir. 1983); *Kalman v. Kimberly-Clark Corp.*, 713 F.2d760, 771, 218 USPQ 781, 789 (Fed. Cir. 1983)).

Here, we find that Meyer discloses an apparatus for monitoring leakage currents between an insulator and ground. Specifically, the reference's "device [is] used in the continuous, on-line, monitoring of the charging or leakage current of a step-graded or capacitive insulated high voltage apparatus." Col. 3, ll. 18-20. We also find that the device includes a wire for carrying a leakage current from the insulator to the ground. Specifically, "lowest potential foil layer 26 is electrically connected to ground 10 with a

conductive element 30 which provides a ground path for the insulation charging current 32." Col. 6, ll. 5-8.

Meyer's device also includes an amplifier. Specifically, "coil assembly 34 is electrically connected to a sensor electronic circuit or transmitter 38. . . . The transmitter 38 performs the functions of **amplifying** and rectifying the sensor voltage signal Vs." *Id.* at ll. 25-29 (emphasis added). Furthermore, we find that the transmitter, which operates as an amplifier *inter alia*, generates a signal proportional to the leakage current. Specifically, "[o]utput driver circuits in the transmitter 38 are used to modulate a DC current I1 in a control loop 40. The modulation results in the **current signal I1 containing a proportionate magnitude of the charging current 32**." *Id.* at ll. 29-33 (emphasis added).

Second, the appellant argues, "[t]here is no disclosure of coil 34 having a secondary resistance." (Appeal Br. at 5.) The examiner asserts, "[a] secondary winding having a resistance is an inherent property of a winding."

Claim 1 specifies in pertinent part the following limitations: "a secondary winding, the secondary winding having a secondary resistance. . . ." Giving the claim its

broadest, reasonable construction, the limitations require a winding having some resistance.

It is uncontested that Meyer's device includes a coil, which is a winding. Specifically, "[a] **wound**, non-ferrous toroidal coil assembly 34 is positioned such that the ground conductor 30 passes directly through the center of the toroidal coil, such that the coil 34 links all of the magnetic flux generated by the charging current 32 passing through the conductor 30." Col. 6, ll. 8-13 (emphasis added).

We find that the reference's wound coil 34 inherently features a resistance. "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill.'" *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (quoting *Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1268, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991)). Here, Kiko evidences that resistance is necessarily present in coils and windings. Specifically, the reference discloses that a "winding 14d," col. 2, ll. 22-23, features a "series resistance of winding 14d. . . ." Col. 4, l. 14. *See also* Robert L. Shrader, *Electronic Communication* 80 (1985) (evidencing that "resistance exists in the[] windings" of a transformer) (copy attached); Francis Weston Sears *et al.*, *University*

Physics 617 (3d ed. 1964) (evidencing that metal and alloy conductors posses some resistivity) (copy attached). Therefore, we affirm the rejection of claim 1.

Claims that are not argued separately stand or fall together. *In re Kaslow*, 707 F.2d 1366, 1376, 217 USPQ 1089, 1096 (Fed. Cir. 1983) (citing *In re Burckel*, 592 F.2d 1175, 201 USPQ 67 (CCPA 1979)). When the patentability of a dependent claim is not argued separately, in particular, the claim stands or falls with the claim from which it depends. *In re King*, 801 F.2d 1324, 1325, 231 USPQ 136, 137 (Fed. Cir. 1986) (citing *In re Sernaker*, 702 F.2d 989, 991, 217 USPQ 1, 3 (Fed. Cir. 1983); *In re Burckel*, 592 F.2d 1175, 1178-79, 201 USPQ 67, 70 (CCPA 1979)). Furthermore, "[m]erely pointing out differences in what the claims cover is not an argument as to why the claims are separately patentable." 37 C.F.R. § 1.192(c)(7).

Here, although the appellant alleges, "[t]he claims do not stand or fall together," (Appeal Br. at 2), he argues claims 1 and 4 as a group. (*Id.* at 3-4). Furthermore, the appellant fails to argue the patentability of claims 20-24 separately. Therefore, claims 4 and 20-24 fall with claim 1, and we affirm the rejections of claims 4 and claims 20-24.

Claim 2, 3, and 6-8

Admitting that "Meyer did not expressly disclose a ferromagnetic transformer core," (Examiner's Answer at 4), the examiner asserts, "[a] ferrite core transformer is well known in the art having magnetic properties suitable for transformer action and seen in the teaching of Kiko (US 3881149). Therefore it would have been obvious for one of ordinary skill in the art to modify Meyer by providing a ferromagnetic transformer core for transformer action." (*Id.* at 10.) The appellant argues, "combining the primary and secondary references as proposed by the Examiner would destroy this important function of the 'non-ferrous nature of the coil assembly 34' in the primary reference." (Appeal Br. at 10.)

"[T]o establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicants." *In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1316 (Fed. Cir. 2000) (citing *In re Dance*, 160 F.3d 1339, 1343, 48 USPQ2d 1635, 1637 (Fed. Cir. 1998); *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984)). Furthermore, "prior art references . . . must be read as a whole and consideration must be given where the references diverge and teach away from the claimed invention." *Akzo N.V. v. U.S. Intn'l Trade Comm'n*, 808

F.2d 1471, 1481, 1 USPQ2d 1241, 1246 (Fed. Cir. 1986) (citing *W.L. Gore & Assocs. v. Garlock*, 721 F.2d 1540, 1550, 220 USPQ 303, 311 (Fed. Cir. 1983)).

Here, Meyer purposefully uses a "**non-ferrous** toroidal coil assembly 34," col. 6, ll. 9-10 (emphasis added), for a stated purpose. Namely, "[t]he non-ferrous nature of the coil assembly 34 results in a low inductance coupling back into the series capacitive circuit of the insulation 20 and, therefore, does not alter the magnitude of the charging current 32 being measured." *Id.* at ll. 13-17. The examiner's proposal to substitute a ferromagnetic coil for the reference's non-ferrous coil, "would require . . . a change in the basic principles under which," *In re Ratti*, 270 F.2d 810, 813, 123 USPQ 349, 352 (CCPA 1959), Meyer "was designed to operate." *Id.*, 123 USPQ at 352. "Such a material and radical modification of the prior art would be contrary to the teachings of the primary reference patent . . . and could be made only with the assistance of [the] appellant's disclosure." *In re Irmscher*, 262 F.2d 85, **?**, 120 USPQ 196, 198 (CCPA 1958).

Because the examiner's proposal to substitute a ferromagnetic coil for Meyer's non-ferrous coil would have required a change in the basic principle under which the reference was designed to operate, we are not persuaded that an artisan would have been motivated to combine the references in the proposed manner despite any desire

for "magnetic properties suitable for transformer action. . . ." (Examiner's Answer at 10.) Therefore, we reverse the rejection of claims 2, 3, and 6-8.

Claims 5 and 9-19

Admitting that "Meyer did not expressly disclose an amplifier producing negative input resistance across the secondary winding to substantially cancel the voltage drop in the secondary winding resistance," (Examiner's Answer at 4), the examiner alleges, "Kiko discloses a compensated transformer circuit 16 with an amplifier 18 producing negative input resistance across the secondary winding (see column 4 lines 46-63, and Fig. 3)." (*Id.* at 10.) The appellant argues, "[t]hat is not a disclosure of producing a negative input impedance across the secondary winding to substantially cancel the voltage drop in the winding due to the secondary winding resistance." (Appeal Br. at 10.)

"'[T]he main purpose of the examination, to which every application is subjected, is to try to make sure that what each claim defines is patentable. *[T]he name of the game is the claim*. . . .'" *In re Hiniker Co.*, 150 F.3d 1362, 1369, 47 USPQ2d 1523, 1529 (Fed. Cir. 1998) (quoting Giles S. Rich, *The Extent of the Protection and Interpretation of Claims --American Perspectives*, 21 Int'l Rev. Indus. Prop. & Copyright L. 497, 499, 501 (1990)).

Here, claim 5 specifies in pertinent part the following limitations: "[t]he apparatus of claim 1, wherein the amplifier has a temperature-dependent input impedance adapted to produce a voltage rise substantially canceling the voltage drop due to the resistance for a range of temperatures." Similarly, claim 9 specifies in pertinent part the following limitations: "an amplifier having input terminals connected across the secondary winding, the amplifier constructed and arranged to produce a voltage rise across the secondary winding substantially canceling a voltage drop across the resistance of the secondary winding. . . ." Also similarly, claim 16 specifies in pertinent part the following limitations: "applying a voltage across the secondary winding to substantially cancel a voltage drop in the winding across the resistance. . . ." Giving claims 5, 9, and 16 their broadest, reasonable construction, the limitations require producing a voltage rise across a winding that substantially cancels a voltage drop across the resistance of the winding.

Having determined what subject matter is being claimed, the next inquiry is whether the subject matter would have been obvious. "In rejecting claims under 35 U.S.C. Section 103, the examiner bears the initial burden of presenting a *prima facie* case of obviousness." *In re Rijckaert*, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993)(citing *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992)). "'A *prima facie* case of obviousness is established when the

teachings from the prior art itself would . . . have suggested the claimed subject matter to a person of ordinary skill in the art.'" *In re Bell*, 991 F.2d 781, 783, 26 USPQ2d 1529, 1531 (Fed. Cir. 1993) (quoting *In re Rinehart*, 531 F.2d 1048, 1051, 189 USPQ 143, 147 (CCPA 1976)).

Here, the examiner fails to allege, let alone show, however, that Kiko's compensated transformer circuit would have produced a voltage rise across a winding that substantially cancels a voltage drop across the resistance of the winding. We will not "resort to speculation," *In re Warner*, 379 F.2d 1011, 1017, 154 USPQ 173, 178 (CCPA 1967), as to such production. Absent a teaching or suggestion of producing a voltage rise across a winding that substantially cancels a voltage drop across the resistance of the winding, the examiner fails to present a *prima facie* case of obviousness. Therefore, we reverse the rejection of claim 5; of claim 9; of claims 10-15, which fall with claim 9, of claim 16; and of claims 17-19, which fall with claim 16.

CONCLUSION

In summary, the rejection of claims 1 and 4 under § 102(b) and the rejection of claims 20-24 under § 103(a) are affirmed. In contrast, the rejection of claims 2, 3, and 5-19 under § 103(a) is reversed. "Any arguments or authorities not included in the brief will be refused consideration by the Board of Patent Appeals and Interferences. . . ." 37

C.F.R. § 1.192(a)(2002). Accordingly, our affirmance is based only on the arguments made in the brief. Any arguments or authorities not included therein are neither before us nor at issue but are considered waived. No time for taking any action connected with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED-IN-PART

ERROL A. KRASS Administrative Patent Judge	)
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